

**WHAT IS CLAIMED IS:**

1. A polypeptide comprising a DNA binding domain that includes a plurality of zinc finger domains, wherein

the DNA binding domain can bind to a site in a VEGF gene, and

at least two of the zinc finger domains each include respective zinc finger domain motifs listed in column 2 of Table 1, Table 2, Table 3, Table 4 or Table 5.

2. The polypeptide of claim 1, wherein the zinc finger domains each include respective zinc finger domain motifs listed in column 2 of Table 1 or Table 3.

3. The polypeptide of claim 2, wherein the zinc finger domain is selected from the group consisting of the zinc finger domains listed in column 3 of Table 1 or Table 3.

4. The polypeptide of claim 3, wherein the DNA binding domain includes, in N-terminal to C-terminal order, first, second and third zinc finger domains, wherein

(1) the DNA contacting residues at positions -1, 2, 3, and 6 of first zinc finger domain are QSHR, those of the second zinc finger domain are RDHT, and those of the third zinc finger domain are RSX<sub>1</sub>R, wherein X<sub>1</sub> is H or N;

(2) the DNA contacting residues at positions -1, 2, 3, and 6 of first zinc finger domain are QSHX<sub>2</sub>, those of the second zinc finger domain are RX<sub>3</sub>HR, and those of the third zinc finger domain are RDHT, wherein X<sub>2</sub> is T or V and X<sub>3</sub> is S or D;

(3) the DNA contacting residues at positions -1, 2, 3, and 6 of first zinc finger domain are RSHR, those of the second zinc finger domain are RDHT, and those of the third zinc finger domain are VSNV;

(4) the DNA contacting residues at positions -1, 2, 3, and 6 of first zinc finger domain are RDER, those of the second zinc finger domain are QSSR, and those of the third zinc finger domain are QSHT;

(5) the DNA contacting residues at positions -1, 2, 3, and 6 of first zinc finger domain are QSSR, those of the second zinc finger domain are QSHT, and those of the third zinc finger domain are RSNR;

(6) the DNA contacting residues at positions -1, 2, 3, and 6 of first zinc finger domain are QSNR, those of the second zinc finger domain are QSHR, and those of the third zinc finger domain are RDHT;

(7) the DNA contacting residues at positions -1, 2, 3, and 6 of first zinc finger domain are QSHR, those of the second zinc finger domain are RDHT, and those of the third zinc finger domain are RSNR;

(8) the DNA contacting residues at positions -1, 2, 3, and 6 of first zinc finger domain are RSHR, those of the second zinc finger domain are QSHT, and those of the third zinc finger domain are RSHR;

(9) the DNA contacting residues at positions -1, 2, 3, and 6 of first zinc finger domain are QSHT, those of the second zinc finger domain are RSHR, and those of the third zinc finger domain are RDER;

(10) the DNA contacting residues at positions -1, 2, 3, and 6 of first zinc finger domain are QSNR, those of the second zinc finger domain are RSHR, and those of the third zinc finger domain are QSSR;

(11) the DNA contacting residues at positions -1, 2, 3, and 6 of first zinc finger domain are RSHR, those of the second zinc finger domain are QSSR, and those of the third zinc finger domain are RSHR;

(12) the DNA contacting residues at positions -1, 2, 3, and 6 of first zinc finger domain are QSHT, those of the second zinc finger domain are WSNR, and those of the third zinc finger domain are RSHR; or

(13) the DNA contacting residues at positions -1, 2, 3, and 6 of first zinc finger domain are WSNR, those of the second zinc finger domain are RSHR, and those of the third zinc finger domain are WSNR.

5. The polypeptide of claim 2, wherein the zinc finger domain is selected from the group consisting of the zinc finger domains listed in column 3 of Table 2, Table 4 or Table 5.

6. The polypeptide of claim 1, wherein the VEGF gene is the human VEGF-A gene.

7. The polypeptide of claim 1, which regulates the VEGF gene expression.

8. The polypeptide of claim 1, wherein the polypeptide further comprises a transcription activation domain, a transcription repression domain, or a protein transduction domain.

9. The polypeptide of claim 8, wherein the transcription activation domain comprises p65 or VP16 activation domain.

10. The polypeptide of claim 8, wherein the transcription repression domain comprises Kid or KOX repression domain.

11. The polypeptide of claim 8, wherein the protein transduction domain is a part of TAT protein, VP22 protein, or Antennapedia homeodomain.

12. A nucleic acid that comprises a sequence encoding the polypeptide of claim 1.

13. The nucleic acid of claim 12, which comprises a sequence encoding the polypeptide of claim 8.

14. A modified mammalian cell that contains the polypeptide of claim 1.

15. The cell of claim 14, wherein the polypeptide is produced from a nucleic acid of claim 14 in the cell.

16. A pharmaceutical composition for preventing or treating a neoplastic disorder, an inflammatory disorder, or an angiogenesis-based disorder, which comprises the polypeptide of claim 1, the nucleic acid of claim 12 or the modified mammalian cell of claim 14, and a pharmaceutically acceptable carrier.

17. The pharmaceutical composition of claim 16, wherein the neoplastic disorder is a cancer.

18. The pharmaceutical composition of claim 16, wherein the zinc finger domain included in the polypeptide is selected from the group consisting of the zinc finger domains listed in column 3 of Table 1 or Table 3.

19. The pharmaceutical composition of claim 18, wherein the polypeptide comprises a DNA binding domain that includes, in N-terminal to C-terminal order, first, second and third zinc finger domains, wherein

(1) the DNA contacting residues at positions -1, 2, 3, and 6 of first zinc finger domain are QSHR, those of the second zinc finger domain are RDHT, and those of the third zinc finger domain are RSX<sub>1</sub>R, wherein X<sub>1</sub> is H or N;

(2) the DNA contacting residues at positions -1, 2, 3, and 6 of first zinc finger domain are QSHX<sub>2</sub>, those of the second zinc finger domain are RX<sub>3</sub>HR, and those of the third zinc finger domain are RDHT, wherein X<sub>2</sub> is T or V and X<sub>3</sub> is S or D;

(3) the DNA contacting residues at positions -1, 2, 3, and 6 of first zinc finger domain are RSHR, those of the second zinc finger domain are RDHT, and those of the third zinc finger domain are VSNV;

(4) the DNA contacting residues at positions -1, 2, 3, and 6 of first zinc finger domain are RDER, those of the second zinc finger domain are QSSR, and those of the third zinc finger domain are QSHT;

(5) the DNA contacting residues at positions -1, 2, 3, and 6 of first zinc finger domain are QSSR, those of the second zinc finger domain are QSHT, and those of the third zinc finger domain are RSNR;

(6) the DNA contacting residues at positions -1, 2, 3, and 6 of first zinc finger domain are QSNR, those of the second zinc finger domain are QSHR, and those of the third zinc finger domain are RDHT;

(7) the DNA contacting residues at positions -1, 2, 3, and 6 of first zinc finger domain are QSHR, those of the second zinc finger domain are RDHT, and those of the third zinc finger domain are RSNR;

(8) the DNA contacting residues at positions -1, 2, 3, and 6 of first zinc finger domain are RSHR, those of the second zinc finger domain are QSHT, and those of the third zinc finger domain are RSHR;

(9) the DNA contacting residues at positions -1, 2, 3, and 6 of first zinc finger domain are QSHT, those of the second zinc finger domain are RSHR, and those of the third zinc finger domain are RDER;

(10) the DNA contacting residues at positions -1, 2, 3, and 6 of first zinc finger domain are QSNR, those of the second zinc finger domain are RSHR, and those of the third zinc finger domain are QSSR;

(11) the DNA contacting residues at positions -1, 2, 3, and 6 of first zinc finger domain are RSHR, those of the second zinc finger domain are QSSR, and those of the third zinc finger domain are RSHR;

(12) the DNA contacting residues at positions -1, 2, 3, and 6 of first zinc finger domain are QSHT, those of the second zinc finger domain are WSNR, and those of the third zinc finger domain are RSHR; or

(13) the DNA contacting residues at positions -1, 2, 3, and 6 of first zinc finger domain are WSNR, those of the second zinc finger domain are RSHR, and those of the third zinc finger domain are WSNR.

20. An encapsulated composition comprising  
an encapsulation layer composed of a biocompatible material that is  
permeable to proteins having a molecular weight of at least 10 kDa, and  
recombinant mammalian cells, wherein the cells contain a nucleic acid comprising a  
sequence encoding a chimeric zinc finger protein that regulates production of a secreted  
factor.

21. The encapsulated composition of claim 20, wherein the secreted factor is  
insulin, an insulin-like growth factor, VEGF, HGF, interferon, interleukin, or a fibroblast  
growth factor.

22. A method of regulating VEGF gene expression, which comprises introducing the polypeptide of claim 1 or the nucleic acid of claim 12 into a cell.
23. The method of claim 22, wherein the polypeptide comprises a transcription activation domain, and VEGF gene expression is increased in the cell.
24. The method of claim 22, wherein the polypeptide comprises a transcription repression domain, and VEGF gene expression is decreased in the cell.
25. The method of claim 22, wherein the VEGF gene is human VEGF-A gene.
26. The method of claim 22, wherein the cell is a mammalian cell.
27. The method of claim 26, wherein the cell is a human cell.
28. A method of modulating angiogenesis in a subject, which comprises administering the composition of claim 16 to the subject in an amount effective to reduce angiogenesis in the subject.
29. The method of claim 28, wherein the subject is a human that has or is suspected of having a cancer.